

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
16 December 2004 (16.12.2004)

PCT

(10) International Publication Number
WO 2004/110126 A1

(51) International Patent Classification⁷: **H05K 13/04**,
3/30

(21) International Application Number:
PCT/EP2004/051034

(22) International Filing Date: 4 June 2004 (04.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
103 25 179.0 4 June 2003 (04.06.2003) DE

(71) Applicant (for all designated States except US): MAR-
CONI COMMUNICATIONS GMBH [DE/DE]; Gerber-
strasse 33, 71520 Backnang (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ✓ MULLER, Ulf
[DE/DE]; Elbestrasse 30, 71522 Backnang (DE). KON-
✓ RATH, Willibald [DE/DE]; Eichendorffweg 17, 71554
Cottenweiler (DE). ✓ SCHOLL, Klaus [DE/DE]; Streese-
mannstr. 30/5, 71522 Backnang (DE). ✓ SCHMELCHER,

Haiko [DE/DE]; Lindenstr. 36, 74427 Fichtenberg (DE).
GORTZEN, Ralf [DE/DE]; Wachtelgasse 12, 71546
Aspach-Rietenau (DE). ✓ NAHRING, Martin [DE/DE];
Hebbstr. 5, 71554 Weissach (DE).

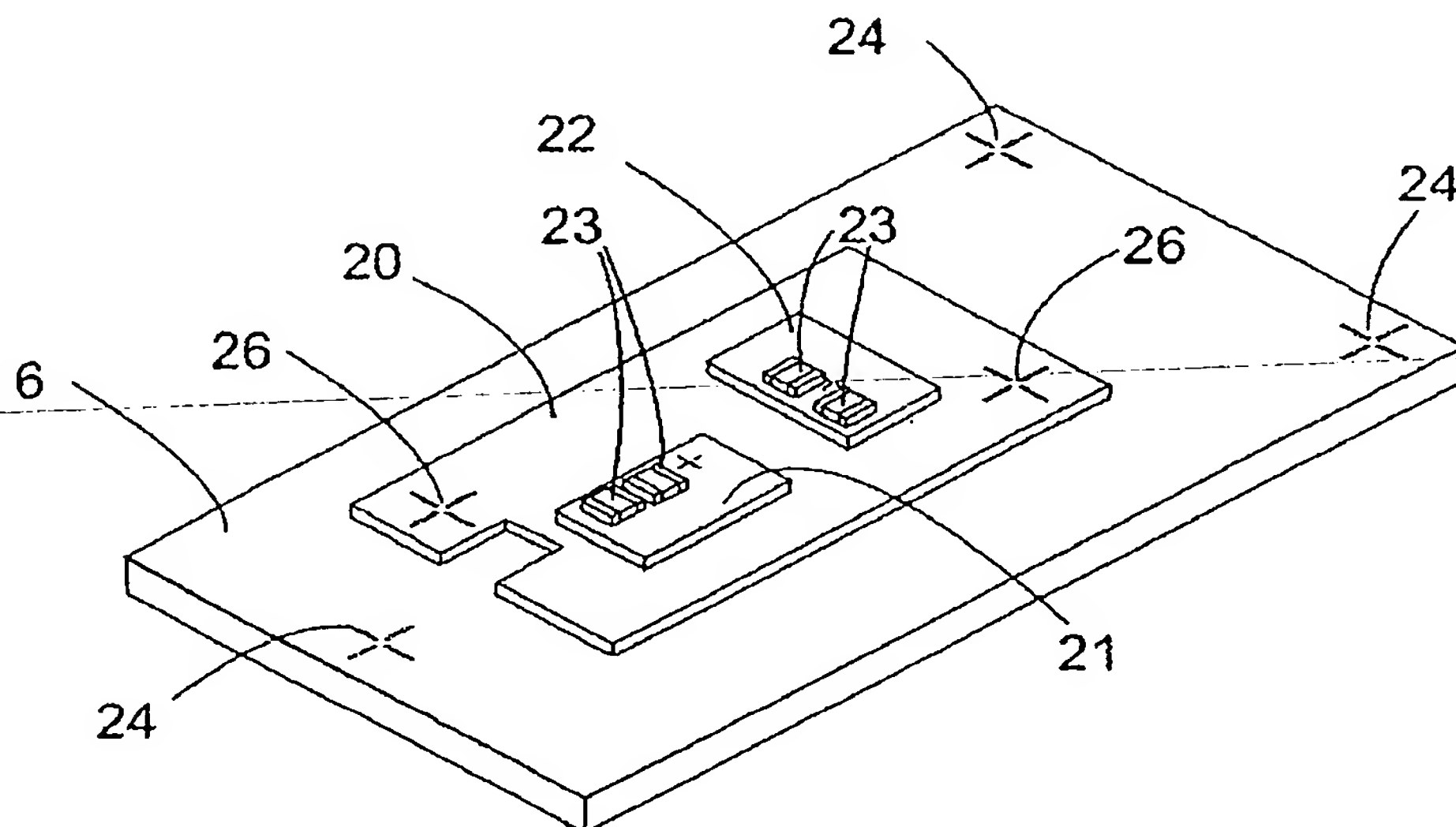
(74) Agents: COCKAYNE, Gillian et al.; Marconi Intellec-
tual Property, Crompton Close, Basildon Essex SS14 3BA
(GB).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

[Continued on next page]

(54) Title: METHOD FOR ASSEMBLING A CIRCUIT



(57) Abstract: In a procedure for automatically placing components (20 to 23) of a circuit on a base plate (6) based on predefined position data, a) the position of at least one first reference mark (24) formed at the base plate (6) is detected; b) a target position for placing a substrate (20) on the base plate (6) is calculated based on the detected position of the first reference mark (24) and the position data, and the substrate (20) is placed at the calculated position; c) the position of at least one second reference mark (26) formed at the substrate (20) is detected and d) a target position for placing a further component (21, 22) on the substrate (20) is calculated based on the detected position of the second reference mark (26) and the position data predefined for said component (21, 22), and the component (21, 22) is placed at the calculated target position.

BEST AVAILABLE COPY

WO 2004/110126 A1



FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

BEST-AVAILABLE COPY